This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (previously amended) An optical component manipulation system, comprising:

first and second opposed jaws for cooperatively engaging an optical component;

a first x-axis position detection system for detecting an x-axis position of the first jaw;

a first y-axis position detection system for detecting a y-axis position of the first jaw;

a second x-axis position detection system for detecting an x-axis position of the second jaw;

a second y-axis position detection system for detecting a y-axis position of the second jaw;

a first x-axis actuator for positioning the first jaw along the x-axis;

a first y-axis actuator for positioning the first jaw along the y-axis;

a second x-axis actuator for positioning the second jaw along the x-axis; and

a second y-axis actuator for positioning the second jaw along the y-axis;

wherein a combination of the first x-axis position detection system, the first y-axis position detection system, the first x-axis actuator, the first y-axis actuator for the first jaw and the second x-axis position detection system, the second y-axis position detection system, the second x-axis actuator, and the second y-axis actuator for the second jaw enable the first jaw and the second jaw to be independently positioned in both the x-axis and y-axis directions simultaneously.

2. (original) An optical component manipulation system as claimed in claim 1, wherein the first and second jaws are adapted to engage an optical component.

3. (currently amended) An optical component manipulation system, comprising:

first and second opposed jaws for cooperatively engaging an optical component;

a first x-axis position detection system for detecting an x-axis position of the first jaw;

a first y-axis position detection system for detecting a y-axis position of the first jaw;

a second x-axis position detection system for detecting an x-axis position of the second jaw;

a second y-axis position detection system for detecting a y-axis position of the second jaw;

a first x-axis actuator for positioning the first jaw along the x-axis;

a first y-axis actuator for positioning the first jaw along the y-axis;

a second x-axis actuator for positioning the second jaw along the x-axis;

a second y-axis actuator for positioning the second jaw along the y-axis;

~~An optical component manipulation system as claimed in claim 1, further comprising:~~

a system frame;

a first air bearing between the second jaw and the system frame; and

a second air bearing between the second jaw and the system frame;

wherein a combination of the first x-axis position detection system, the first y-axis position detection system, the first x-axis actuator, the first y-axis actuator for the first jaw and the second x-axis position detection system, the second y-axis position detection system, the second x-axis actuator, and the second y-axis actuator for the second jaw enable the first jaw and the second jaw to be independently positioned in both the x-axis and y-axis directions simultaneously.

4. (original) An optical component manipulation system as claimed in claim 1, further comprising first and second stages, to which the respective jaws, position detection systems, and actuators are attached.

5. (currently amended) An optical component manipulation system, comprising:

first and second opposed jaws for cooperatively engaging an optical component;

a first x-axis position detection system for detecting an x-axis position of the first jaw;

a first y-axis position detection system for detecting a y-axis position of the first jaw;

a second x-axis position detection system for detecting an x-axis position of the second jaw;

a second y-axis position detection system for detecting a y-axis position of the second jaw;

a first x-axis actuator for positioning the first jaw along the x-axis;

a first y-axis actuator for positioning the first jaw along the y-axis;

a second x-axis actuator for positioning the second jaw along the x-axis;

a second y-axis actuator for positioning the second jaw along the y-axis; and

first and second stages, to which the respective jaws, position detection systems, and actuators are attached;

~~An optical component manipulation system as claimed in claim 4,~~ wherein each of the stages rides on a system frame on respective first and second air bearings and a combination of the first x-axis position detection system, the first y-axis position detection system, the first x-axis actuator, the first y-axis actuator for the first jaw and the second x-axis position detection system, the second y-axis position detection system, the second x-axis actuator, and the second y-axis actuator for the second jaw enable the first jaw and the second jaw to be independently positioned in both the x-axis and y-axis directions simultaneously.

6. (original) An optical component manipulation system as described in claim 1, further comprising a jaw heater for heating at least one of the first and second jaws and thereby an optical component held by the jaws.

7. (original) An optical component manipulation system as described in claim 6, wherein the jaw heating system comprises a laser device that irradiates at least one of the jaws.

8. (original) An optical component manipulation system as described in claim 1, further comprising a jaw heater for heating at least one of the first and second jaws and thereby an optical component held by the jaws to a solder melting temperature.

9. (original) An optical component manipulation system as described in claim 1, further comprising a control system for driving the first x-axis actuator, the first y-axis actuator, the second x-axis actuator, and the second y-axis actuator to position each of the first and second jaws.

10. (original) An optical component manipulation system as described in claim 1, wherein the control system drives the first x-axis actuator, the first y-axis actuator, the second x-axis actuator, and the second y-axis actuator in response to position information from each of the first x-axis position detection system, the first y-axis position detection system, the second x-axis position detection system, and the second y-axis position.

11. (original) An optical component manipulation system as described in claim 1, wherein the jaws extend downward to engage an optical component from above.

12. (original) An optical component manipulation system as claimed in claim 1, further comprising first and second stages, to which the respective jaws are attached, the stages being supported by respective y-axis suspension systems.

13. (original) An optical component manipulation system as described in claim 1, wherein each of the first and second, x- and y-actuators comprises a voice coil system.

14. (original) An optical component manipulation system as described in claim 1, wherein each of the first and second, x- and y-position detection system comprises an optical encoder and grating.

15. (original) An optical component manipulation system as described in claim 1, further comprising a substrate stage for positioning a substrate in a direction that is orthogonal to the x-axis and the y-axis.

16. (previously amended) An optical component manipulation system, comprising:

first and second opposed jaws for manipulating an optical component;

a first position detection system for detecting a position of the first jaw in two dimensions;

a second position detection system for detecting a position of the second jaw in the two dimensions;

a first actuator for positioning the first jaw in the two dimensions; and

a second actuator for positioning the second jaw in the two dimensions;

wherein a combination of the first position detection system and first actuator for the first jaw and the second position detection system and the second actuator for the second jaw enable the first jaw and the second jaw to be independently positioned in both the x-axis and y-axis directions simultaneously.

17. (original) An optical component manipulation system as described in claim 16, further comprising a controller for controlling the first and second actuators in response to feedback from the first and second position detection systems.

18. (original) An optical component manipulation system as described in claim 16, further comprising a controller for controlling the first and second actuators to independently position the first and second jaws in response to feedback from the first and second position detection systems.

19. (original) An optical component manipulation system as described in claim 16, further comprising a substrate stage for positioning a substrate in a direction that is orthogonal to the two dimensions.

20. (currently amended) An optical component manipulation system, comprising:

first and second opposed jaws for manipulating an optical component;

a first position detection system for detecting a position of the first jaw in two dimensions;

a second position detection system for detecting a position of the second jaw in the two dimensions;

a first actuator for positioning the first jaw in the two dimensions;

a second actuator for positioning the second jaw in the two dimensions;

~~An optical component manipulation system as claimed in claim 16, further comprising:~~

a system frame;

a first air bearing between the second jaw and the system frame; and

a second air bearing between the second jaw and the system frame;

wherein a combination of the first position detection system and first actuator for the first jaw and the second position detection system and the second actuator for the second jaw enable the first jaw and the second jaw to be independently positioned in both the x-axis and y-axis directions simultaneously.

21. (original) An optical component manipulation system as claimed in claim 20, further comprising first and second stages, to which the respective jaws, position detection systems, and actuators are attached.

22. (original) An optical component manipulation system as described in claim 16, further comprising a jaw heater for heating at least one of the first and second jaws and thereby the optical component held by the jaws.

23. (original) An optical component manipulation system as described in claim 22, wherein the jaw heating system comprises a laser device that irradiates at least one of the jaws.

24. (original) An optical component manipulation system as described in claim 16, wherein the jaws extend downward to engage an optical component from above.

25. (original) An optical component manipulation system as described in claim 16, wherein each of the first and second actuators comprises a voice coil system.

26. (previously amended) An optical component manipulation system as described in claim 16, wherein each of the first and second position detection systems comprises an optical encoder and grating.

27. (withdrawn) An optical structure alignment process, comprising:

engaging the optical structure with a first jaw;

engaging the optical structure with a second jaw;

actuating the first and second jaws to move the optical component along an x- and y-axis to position the optical structure.